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Mike Baker National Weather Service Boulder, Colorado August 23, 2012

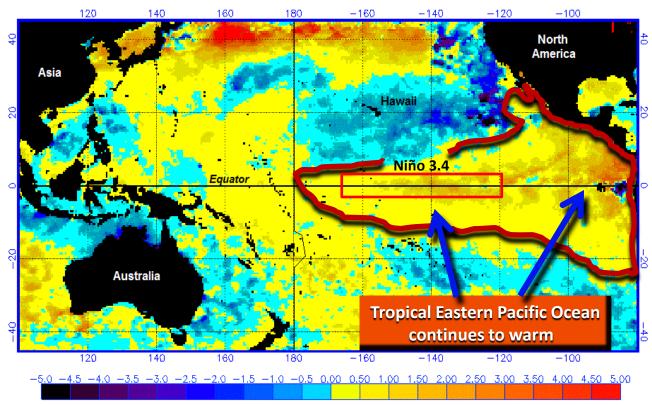




### El Niño Conditions Developing in the Pacific Ocean

\*\* El Niño Watch Now in Effect \*\*



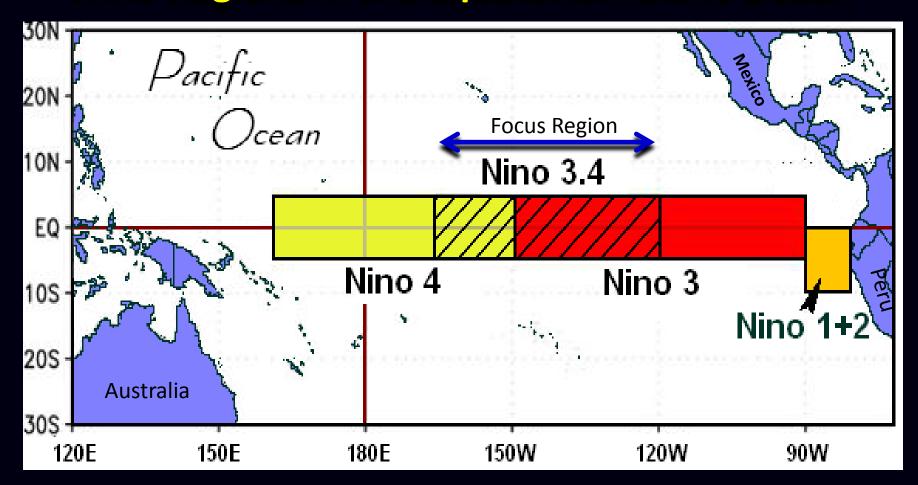


SST Anomaly in Degs C

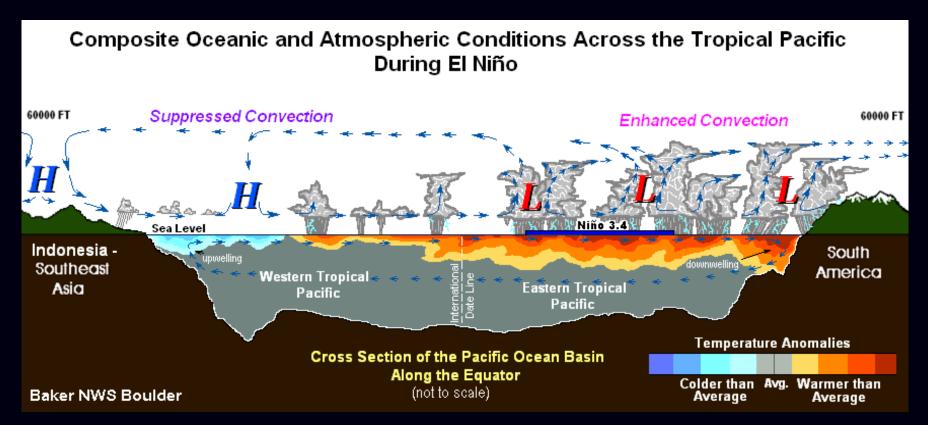
NOAA/National Environmental Satellite, Data and Information Service (NESDIS)

During July, prevailing oceanic and atmospheric conditions in the tropical Pacific Ocean indicated the presence of ENSO-neutral conditions. However, in recent weeks positive equatorial sea surface temperatures (SSTs) have continued to steadily increase, exceeding 0.5C across the eastern tropical Pacific. This and other indicators reflect a likely progression towards El Niño.

### Niño Regions in the Equatorial Pacific Ocean



Niño 3.4 – The principal region in the eastern Equatorial Pacific Ocean used by the Climate Prediction Center (CPC) for monitoring, assessing and predicting ENSO (hatched region on the above map).



During El Niños, particularly those of moderate to strong intensity, neutral to weak low-level westerly wind and near-surface ocean current anomalies dominate the equatorial region of the Pacific Ocean. This combined atmospheric and oceanic circulation causes upwelling of relatively cold deep ocean waters in the far western tropical Pacific Ocean resulting in negative sea surface temperature anomalies in the region. The cooler than normal waters actively suppress the formation of deep atmospheric convection (thunderstorms/precipitation) in the region. This same cross ocean circulation pattern during El Niño cycles also causes downwelling of abnormally warm near-surface ocean water pooling along the northwest coast of South America, which often produces a deep submarine layer of positive temperature anomalies. These abnormally warm waters help to promote deep atmospheric convection (thunderstorms/precipitation) over the eastern Pacific, including the area referred to as Niño 3.4.

### The Oceanic Niño Index - ONI

Year	DJF	JFM	FMA	MAM	АМЈ	МЈЈ	JJA	JAS	ASO	SON	OND	NDJ
2000	-1.7	-1.5	-1.1	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.6	-0.8	-0.8
2001	-0.7	-0.6	-0.5	-0.3	-0.2	-0.1	0.0	0.0	-0.1	-0.2	-0.2	-0.3
2002	-0.2	0.0	0.1	0.3	0.5	0.7	0.8	0.8	0.9	1.2	1.3	1.3
2003	1.1	0.8	0.4	0.0	-0.2	-0.1	0.2	0.4	0.4	0.4	0.4	0.3
2004	0.3	0.2	0.1	0.1	0.1	0.3	0.5	0.7	0.7	0.7	0.7	0.7
2005	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.0	-0.2	-0.5	-0.8
2006	-0.9	-0.7	-0.5	-0.3	0.0	0.1	0.2	0.3	0.5	0.8	1.0	1.0
2007	0.7	0.3	-0.1	-0.2	-0.3	-0.3	-0.3	-0.6	-0.9	-1.1	-1.2	-1.4
2008	-1.5	-1.5	-1.2	-0.9	-0.7	-0.5	-0.3	-0.2	-0.1	-0.2	-0.4	-0.7
2009	-0.9	-0.8	-0.6	-0.2	0.1	0.4	0.5	0.6	0.7	1.0	1.4	1.6
2010	1.6	1.4	1.1	0.7	0.2	-0.3	-0.8	-1.2	-1.4	-1.5	-1.5	-1.5
2011	-1.4	-1.3	-1.0	-0.7	-0.4	-0.2	-0.2	-0.3	-0.6	-0.8	-1.0	-1.0
2012	-0.9	-0.7	-0.5	-0.3	-0.1	0.0						

NOAA/CPC Last Update 08-06-12

An ONI of 0.0 indicates neutral ENSO conditions in the Pacific during the 3-month climate season of May-June-July, 2012.

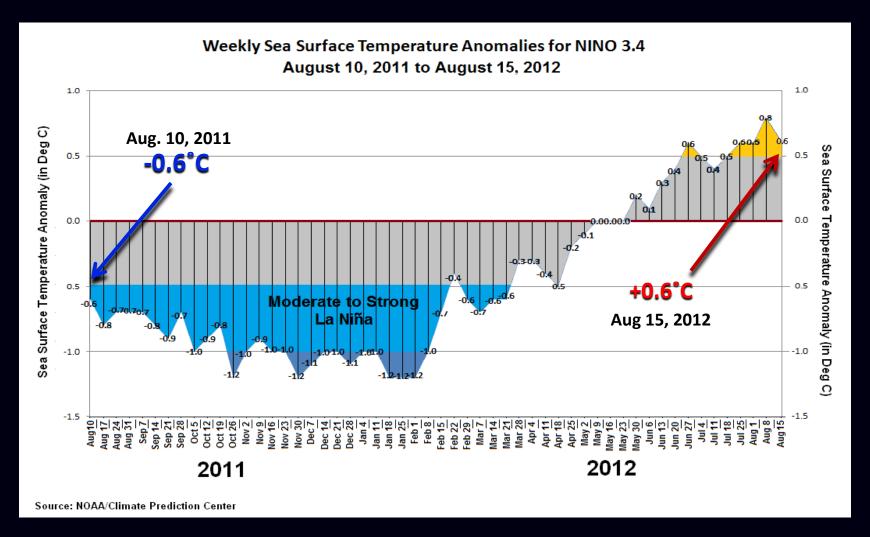
El Niño: ONI higher than +0.45 Neutral ENSO: ONI of -0.45 to +0.45 La Niña: ONI lower than -0.45 The ONI is based on sea surface temperature (SST) departures from average in the Niño 3.4 region of the eastern tropical Pacific Ocean. It is the principal measure used by NOAA's Climate Prediction Center (CPC) for monitoring, assessing and predicting El Niño/Southern Oscillation (ENSO.)

ONI is defined as the three-month running mean SST departures in the Niño 3.4 region of the Pacific.

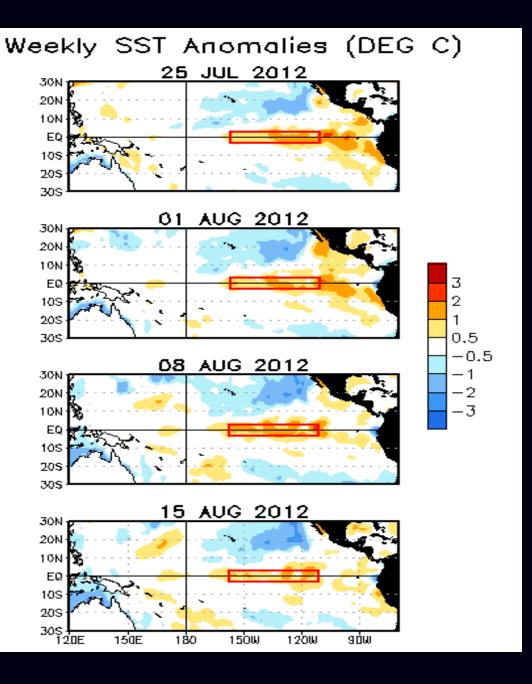
ONI is used to place current ENSO and non-ENSO events into a historical perspective.

CPC's operational definitions of El Niño and La Niña are keyed to the ONI index.

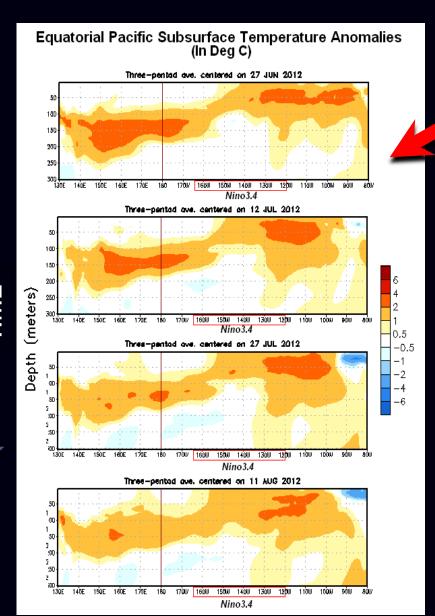
For historical purposes, warm and cold phases of ENSO (the red and blue colored numbers) are defined when the threshold is met for a minimum of 5 consecutive overlapping 3-month seasons.



The magnitude of the weekly SST anomaly for Niño 3.4 region decreased slightly during the week of August 8, 2012, after a gradual move into positive territory since the end of May 2012. As of August 15, 2012, the weekly SST anomaly for Pacific region Nino 3.4 was +0.6°C. This is an exact reversal of the weekly SST anomaly observed one year ago at the beginning of a moderate to strong La Niña.

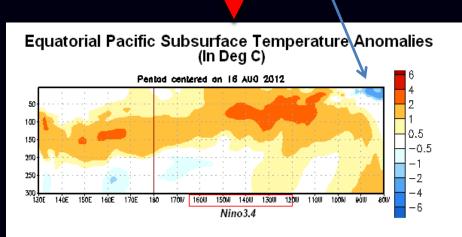


- During the four week period ending 15 August 2012, above average sea surface temperatures (SSTs) weakened across the eastern half of the equatorial Pacific.
- As positive sea surface temperature anomalies decreased in magnitude near the South American coast, positive SST anomalies increased in magnitude in the central equatorial Pacific.
- During the same period, SST anomalies remained negative off the west coast of North America, and in the waters surrounding the Hawaiian Islands.



Since the early part of July 2012, positive subsurface (100-300 meters deep) temperature anomalies have dominated the upper layers of the entire tropical Pacific Ocean. Although some cooling of the thermocline (subsurface layers) has occurred in recent weeks.

During the recent period centered on 16 August 2012, positive subsurface temperature anomalies persisted, except for the appearance of negative anomalies in the extreme eastern tropical Pacific off the coast of Central America.



#### Mid-Aug 2012 Plume of Model ENSO Predictions Dynamical Model: NCEP CFSv2 NASA GMAO DYN AVG NCEP CFS STATAVG JMA SCRIPPS CPC CON Strong El Nino 1.5 AUS/POAMA Moderate ECMWE Vino3.4 SST Anomaly (°C) El Nino UKMO 1.0 KMA SNU ESSIC ICM 0.5 COLA ANOM MetFRANCE Neutral COLA CCSM3 0.0 CS-IRI-MM Neutral GFDL CM2.1 -0.5 CMC CANSIP Weak Statistical Model: La Nina CPC MRKOV -1.0 Moderate CDC LIM CPC CA -1.5 CPC CCA Strong La Nina CSU CLIPR -2.0UBC NNET FSU REGR FORECAST: OBS UCLA-TCD -2.5FMA MAM AMJ MJJ ASO SON OND NDJ DJF JFM 2012 2013

Forecast SST Anomalies (deg C) in the Niño 3.4 Region

Seasons (2012-2013) ASO SON OND NDJ DJF JFM FMA MAM AMJ

Average, Dynamical Models	0.9	1.0	1.0	1.0	0.9	0.8	0.7	0.5	
Average, Statistical Models	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.1	0
Average, All Models	0.7	0.8	0.8	0.8	0.7	0.6	0.5	0.3	0.2

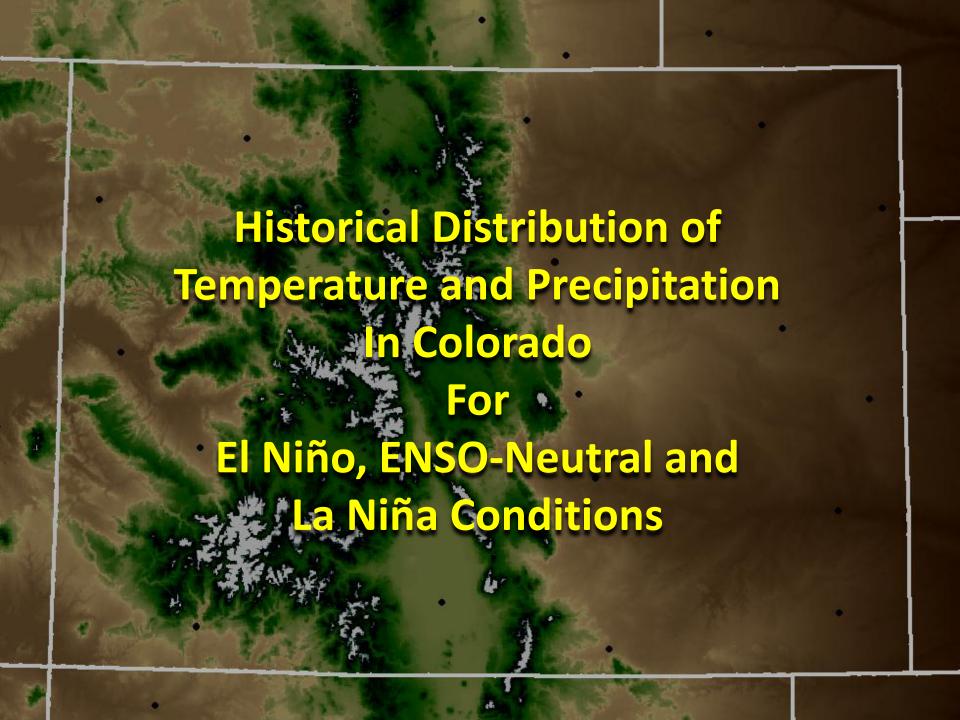
Source: The International Research Institute for Climate and Society (IRI) - 16 Aug 2012

### The ENSO Outlook for the Next Three Months

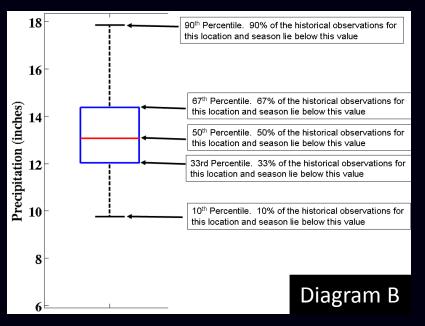
Nine of the 17 dynamical models used to predict the different phases of ENSO indicate an El Niño of at least moderate strength (an average SST anomaly of 1.0°C and greater) during the September-November (SON) 2012 climate season. Two dynamical models go so far as to predict a strong El Niño during this three month period.

By contrast, none of the eight statistical ENSO prediction models indicate an El Niño stronger than weak during the SON 2012 season. Three of these models predict neutral conditions to persist through the 2012-2013 winter season.

See the table (at left) for the seasonal SST anomaly averages for Niño 3.4 through the spring of 2013.



# Colorado Climate Divisions Northeast Colorado Div. 046 Southeast Colorado Div. 047 Div. 099 Diagram A



### Interpreting ENSO Box and Whisker Plots

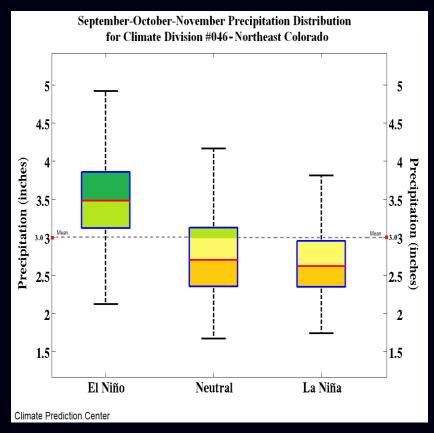
**Diagram A** is a map of the four climate megadivisions in Colorado used by the Climate Prediction Center (CPC)—Divisions 046, 047,048 and 099.

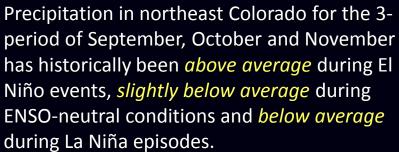
CPC has produced 3-month historical temperature and precipitation distribution plots for the three different ENSO categories —El Niño, La Niña and ENSO-neutral (non-ENSO) conditions for every climate mega-division in the United States.

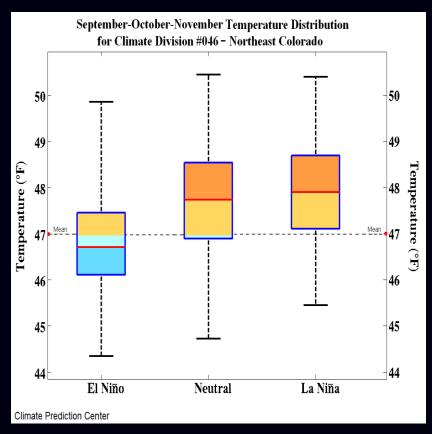
Diagram B is a description of the ENSO box and whisker analysis plot used by CPC to represent historical temperature and precipitation distributions for each ENSO category pertaining to each climate division.

The red line inside the ENSO box represents the mean or 50<sup>th</sup> percentile of the data (temperature or precipitation) distribution for each climate division. Approximately 34% of the total observations exist within the ENSO box, and the remaining observations (about 66%) lie outside of the box along the whiskers extending above and below the box.

### Precipitation and Temperature Composites (ENSO Box and Whisker Analysis Plots) for the Northeast Colorado Climate Division #046 for September-November

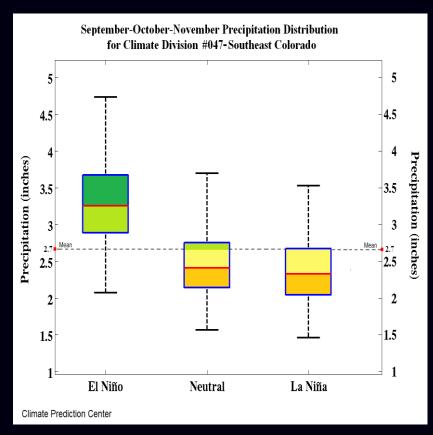


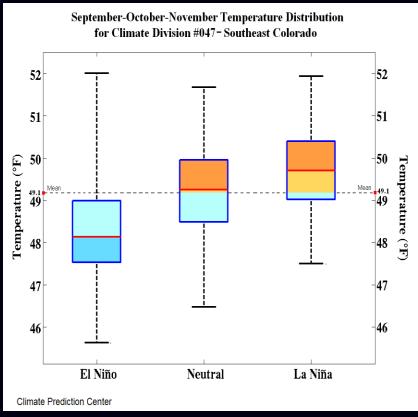




For the same three month period, temperatures were *slightly below average* during El Niños, and *above average* during ENSO-neutral conditions and La Niña events.

### Precipitation and Temperature Composites (ENSO Box and Whisker Analysis Plots) for the Southeast Colorado Climate Division #047 for September-November

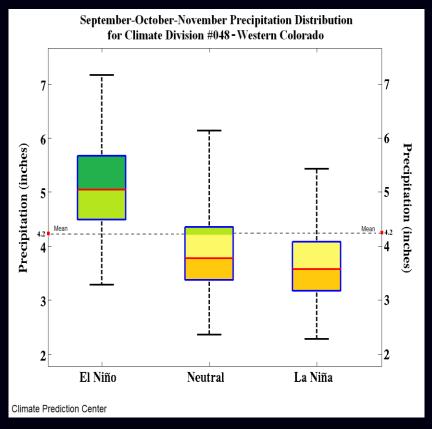




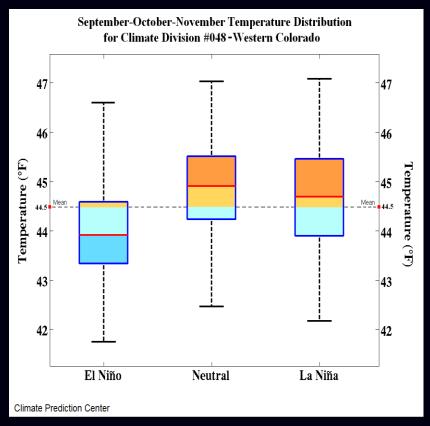
For the months of September, October and November, precipitation in southeast Colorado has historically been *above average* during El Niño events and *near to below average* for ENSO-neutral and La Niña episodes.

For the same three month period, temperature was *below average* during El Niño events and *near to above average* during ENSO-neutral and La Niña conditions.

### Precipitation and Temperature Composites (ENSO Box and Whisker Analysis Plots) for the Western Colorado Climate Division #048 for September-November



Precipitation in western Colorado during these same 3 months was historically *above average* during El Niños, *near to slightly below average* for ENSO-neutral conditions, and *below average* during La Niña events.

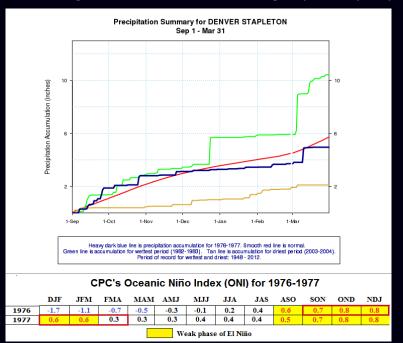


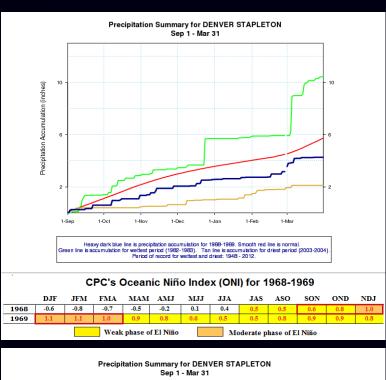
Temperatures during the same period were slightly below average for El Niños, and slightly above average for ENSO-neutral and La Niña conditions. Note, these climate distributions do not take into consideration the magnitude (weak, moderate, strong) of the ENSO cycle.

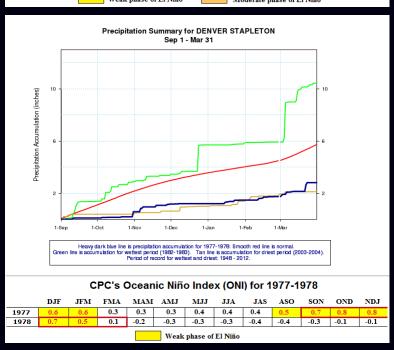
### Precipitation Composites for the Denver – Stapleton, Colorado Observation Station During Five Recent Weak to Moderate El Niño Cycles

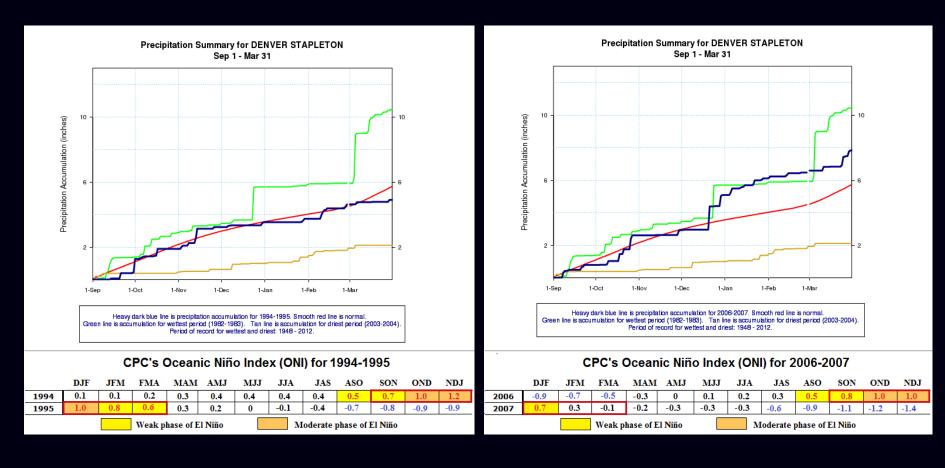
The heavy blue line is a trace of precipitation accumulation for the period September through March. The smooth red line represents the average for this location. CPC's seasonal ONI is provided for reference.

The outlook for El Niño this winter season fairly resembles the ONI observed during 1968-1969 when precipitation ran below average throughout the winter season. Precipitation for all three seasons was either average or below average, with 1977-1978 being especially dry.









The seasonal ONI during the 1994-1995 and 2006-2007 El Niño events most resembles the current outlook for El Niño which borders on moderate strength for much of the 2012-2013 winter season.

Precipitation accumulation at Denver-Stapleton remained closed to average during the entire 1994-1995 winter season. Near average precipitation was also observed during the fall of 2006. However, during the latter half of December precipitation spiked with a few significant snowfalls. Additional snowfall during January and February of 2007 held the precipitation tally to well above average for the remainder of the winter season.

Average Date of First Snow (at Least 0.01")

of the Season for Eight Locations
In Northeast Colorado –

For ¹All Years, and Years During a Weak,
Moderate or Strong El Niño Since 1980

### **Denver-Stapleton**

1980-2011 Average	15-Oct
Weak El Nino Avg	25-Oct
Moderate El Nino Avg	21-Oct
Strong El Nino Avg	14-Oct
All El Nino Yrs Avg	20-Oct

### Boulder

1980-2011 Average	17-Oct
Weak El Nino Avg	21-Oct
Moderate El Nino Avg	15-Oct
Strong El Nino Avg	14-Oct
All El Nino Yrs Avg	16-Oct

### Fort Collins - CSU

1980-2011 Average	22-Oct
Weak El Nino Avg	31-Oct
Moderate El Nino Avg	25-Oct
Strong El Nino Avg	17-Oct
All El Nino Yrs Avg	24-Oct

### **Greeley - UNC**

1980-2011 Average	18-Oct
Weak El Nino Avg	15-Nov
Moderate El Nino Avg	20-Oct
Strong El Nino Avg	14-Oct
All El Nino Yrs Avg	23-Oct

### Castle Rock

Cheesman

Wyoming

Denver-

Stapleton

Greeley

Fort Collins

Boulder

1980-2011 Average	21-Oct
Weak El Nino Avg	25-Oct
Moderate El Nino Avg	4-Nov
Strong El Nino Avg	14-Oct
All El Nino Yrs Avg	26-Oct

### Cheesman

1980-2011 Average	17-Oct
Weak El Nino Avg	16-Oct
Moderate El Nino Avg	27-Oct
Strong El Nino Avg	16_Oct
All El Nino Yrs Avg	22-Oct

### Ralston Reservoir

Baker - NWS Boulder

Nebraska

Sterling

Northeast

Colorado

1980-2011 Average	20-Oct
Weak El Nino Avg	25-Oct
Moderate El Nino Avg	21-Oct
Strong El Nino Avg	16-Oct
All El Nino Yrs Avg	21-Oct

### Sterling

1980-2011 Average	6-Nov
Weak El Nino Avg	25-Oct
Moderate El Nino Avg	4-Nov
Strong El Nino Avg	na
All El Nino Yrs Avg	na

Baker - National Weather Service Boulder, Colorado

### Average Date of First Snowfall (at Least 0.01") of the Season For Four Mountain Locations In North Central Colorado – For <sup>1</sup>All Years, and Years During a Weak, Moderate or Strong El Niño Since 1980

### **Grand Lake**

1980-2011 Average	10-Oct
Weak El Nino Avg	19-Sep
Moderate El Nino Avg	14-Oct
Strong El Nino Avg	4-Oct
All El Nino Yrs Avg	6-Oct

### Winter Park

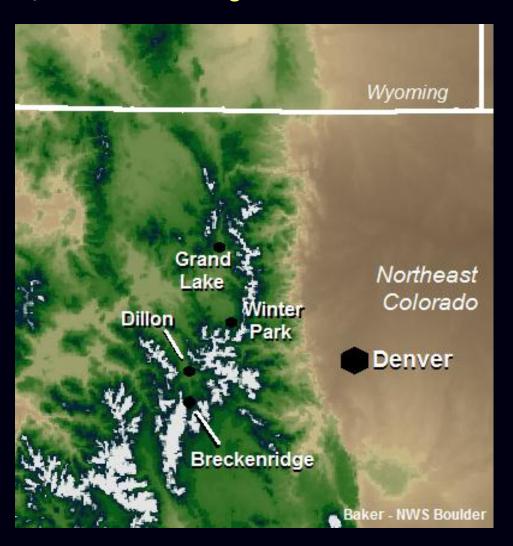
1980-2011 Average	4-Oct
Weak El Nino Avg	22-Sep
Moderate El Nino Avg	25-Sep
Strong El Nino Avg	30-Sep
All El Nino Yrs Avg	26-Sep

### Dillon

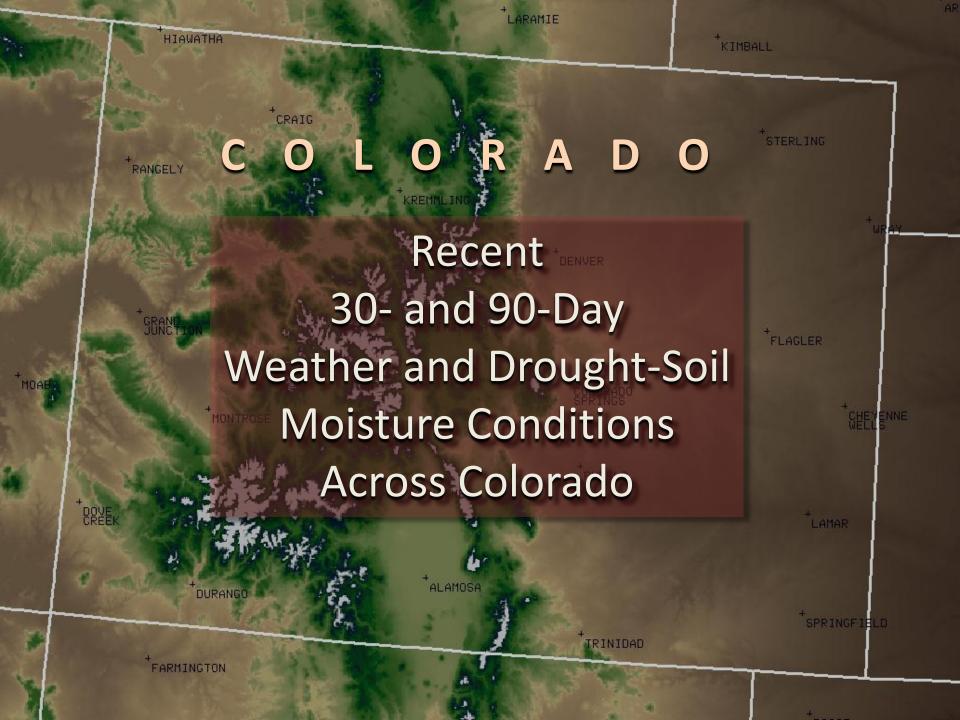
1980-2011 Average	5-Oct		
Weak El Nino Avg	2-Oct		
Moderate El Nino Avg	6-Oct		
Strong El Nino Avg	7-Oct		
All El Nino Yrs Avg	5-Oct		

### Breckenridge

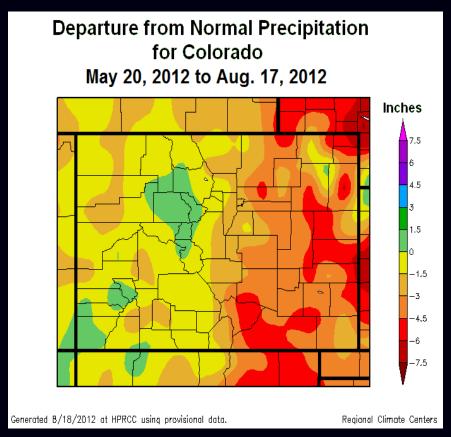
1980-2011 Average	30-Sep		
Weak El Nino Avg	13_Sep		
Moderate El Nino Avg	3-Oct		
Strong El Nino Avg	3-Oct		
All El Nino Yrs Avg	2-Oct		

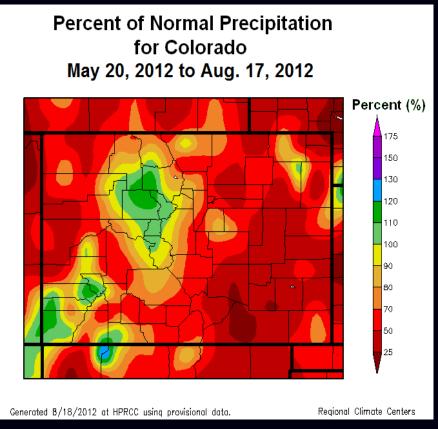


<sup>&</sup>lt;sup>1</sup> 1980-2011 Average – Refers to all Fall-Winter-Spring Snowfall Seasons During El Niño, La Niña and non-ENSO conditions



### **Precipitation for the 90-Day Period Ending August 17, 2012**

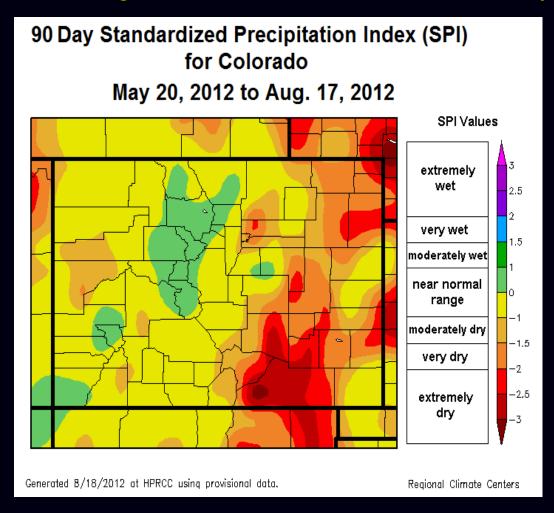




Precipitation during the recent 90-day period ending August 17<sup>th</sup> was below to much below average across most of Colorado. Precipitation was most lacking on the eastern plains where negative precipitation anomalies of 3 to 6 inches below average were common. These totals were some 25 to 70 percent of average. Similarly dry conditions prevailed across northwest Colorado.

Embedded in all this dryness were pockets of above average precipitation, notably in the north central mountains around Vail, and in portions of the San Juan Mountains and Four Corners area of southwest Colorado.

### **Drought-Soil Moisture Conditions for the 90-Day Period Ending August 17, 2012**

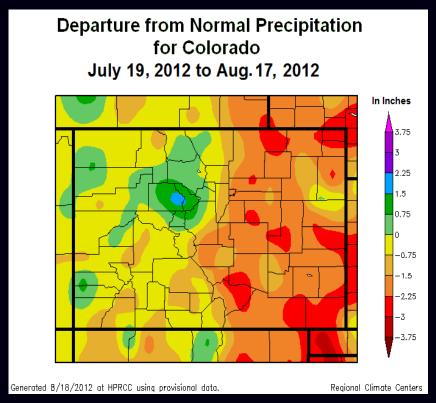


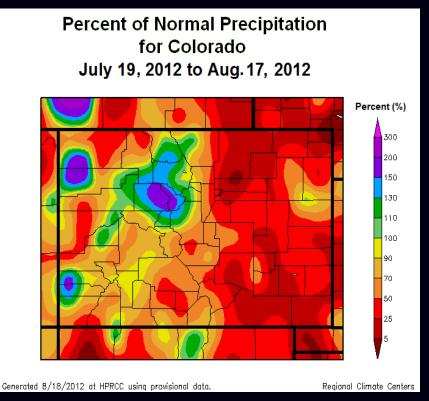
The Standardized Precipitation Index (SPI) for the 90-day period ending August 17, 2012, indicates moderate to very dry conditions for nearly all of Colorado, with extremely dry soil conditions in the northeast corner and the southeast plains of the state.

Thunderstorms associated with the summer monsoon pattern helped to produce near normal soil moisture levels in band extending from southwest to north central Colorado.

The SPI was developed to monitor potential short term agricultural and long-term hydrological drought conditions. The SPI is a probability index that considers <u>only</u> precipitation.

### **Precipitation for the 30-Day Period Ending August 17, 2012**

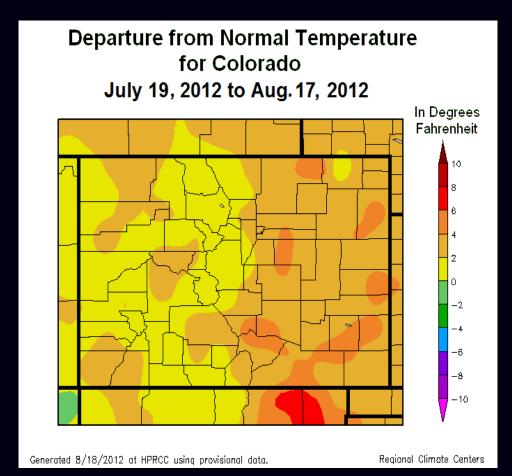


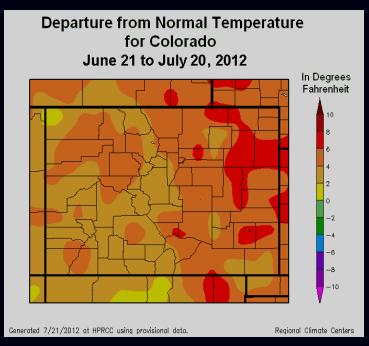


Precipitation during the recent 30-day period ending August 17<sup>th</sup> remained below to much below average for most of Colorado, particularly in areas east of the mountains. Precipitation on the high plains of eastern Colorado generally varied from 1 to 3 inches below average. These totals were 25 to 70 percent of average, and a few spots such as just northeast of Denver, as much as 5 percent of average.

Western Colorado faired bettered in the rain department during this period. Thunderstorms associated with the summer monsoon managed to produce pockets of above to much above average precipitation, most notably in the north central mountains around Vail, and western sections of the San Juan Mountains in southwest Colorado.

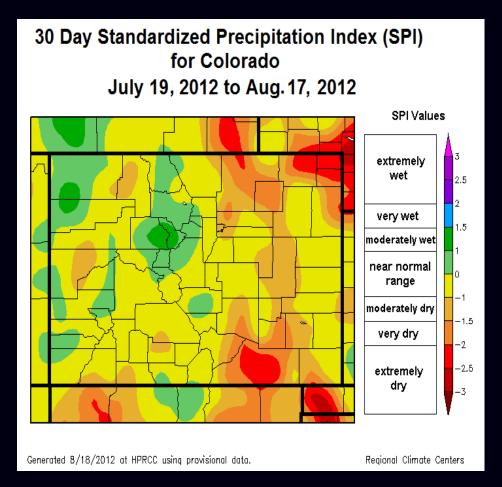
### Temperature for the 30-Day Period Ending August 17, 2012

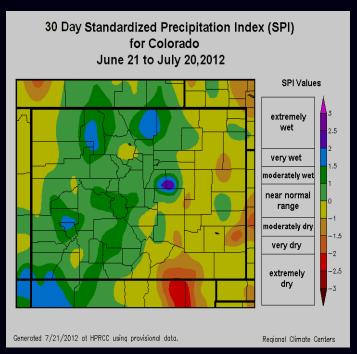




Temperatures during this same 30-day period (see left map) remained above average across Colorado. The greatest temperature departures were observed in eastern Colorado where readings were some 4 to 6 degrees (F) above average for this time period. Nowhere in Colorado were temperatures below average during this 30-day period, although temperature departures from normal decreased from those observed 30 days prior (see right map for comparison.)

### **Drought-Soil Moisture Conditions for the 30-Day Period Ending August 17, 2012**





The Standardized Precipitation Index (SPI) for the 30-day period ending August 17, 2012 indicates moderately dry to very dry solid moisture conditions across much of Colorado. The eastern half of the state remained the driest of all with pockets of extremely dry soil conditions up along the Wyoming and Nebraska borders and much of Las Animas County in southeast Colorado.

Compare the latest SPI to that observed for the 30-day period ending July 20<sup>th</sup> (refer to the right map.)

### U.S. Drought Monitor

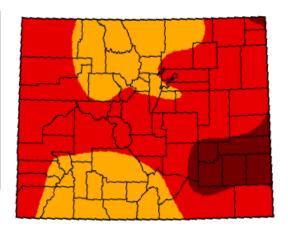
### August 14, 2012

Valid 7 a.m. EST

### Colorado

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	99.96	68.37	9.19
Last Week (08/07/2012 map)	0.00	100.00	100.00	99.96	65.46	5.67
3 Months Ago (05/15/2012 map)	5.15	94.85	64.57	28.49	0.00	0.00
Start of Calendar Year (12/27/2011 map)	67.79	32.21	24.98	14.94	0.04	0.00
Start of Water Year (09/27/2011 map)	60.62	39.38	27.69	19.99	7.88	0.56
One Year Ago (08/09/2011 map)	61.06	38.94	30.11	24.84	18.37	1.45



### Intensity:

D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe

D3 Drought - Extreme
D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

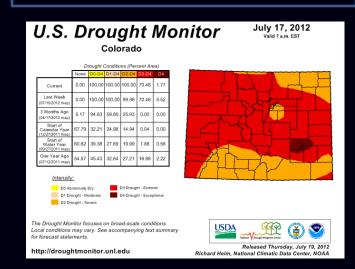
http://droughtmonitor.unl.edu







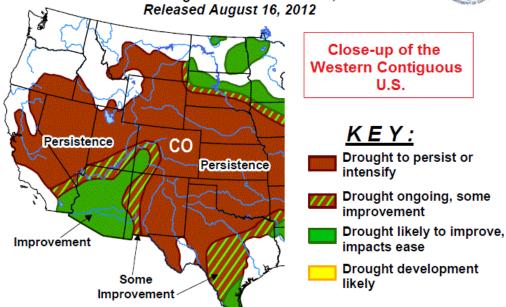
Released Thursday, August 16, 2012 Michael Brewer, National Climatic Data Center, NOAA As of August 14, 2012, most of Colorado continued to experience extreme (D3) to exceptional (D4) drought conditions. Some improvement has been noted in the past 30 days (refer to map below) across south central and north central portions of Colorado, apparently the result of enhanced rainfall attributed to the summer monsoon. Unfortunately, exceptional drought conditions continue to expand across southeast Colorado.





### U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period Valid for August 16 - November 30, 2012





Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

The drought outlook for Colorado from the Climate prediction Center for the period August 16 to November 30, 2012 calls for improvement in the drought conditions prevailing across the southwest corner of the state.

For the remainder of Colorado, drought conditions are expected to persist during this period.

For an outlook for the entire U.S., go to www.cpc.ncep.noaa.gov/products/expert assessment/season drought.gif.

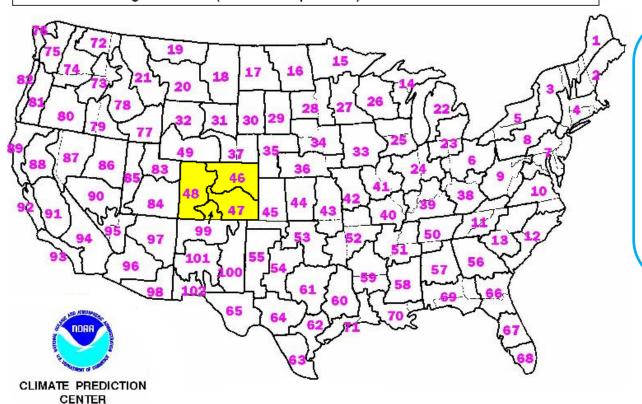
September-October-November 2012
Temperature and Precipitation Outlooks for Colorado Issued by the Climate Prediction Center

### **Climate Prediction Center Seasonal Outlooks**

The National Weather Service Seasonal Climate Outlooks predict the probability of conditions being among the warmest/coldest or wettest/driest terciles of years compared to the period of record 1981-2010.

The outlooks indicate probability of being in three specific categories in reference to the 30-year climatology from 1981-2010. They are above, below and average.

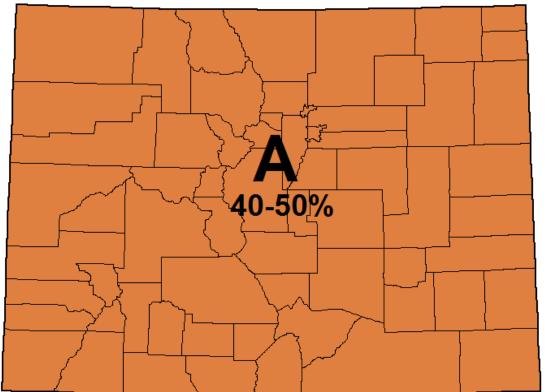
Remember, Climate Predicition Center (CPC) outlooks are made at the scale of the climate megadividions (see the map below).



### Remember:

CPC outlooks do not infer any degree of warmness or coldness, or any quantity of precipitation; *only* their probability of occurrence.





One-Month Outlook Temperature Probability 0.5 Month Lead Valid September 2012 Made:16 August 2012

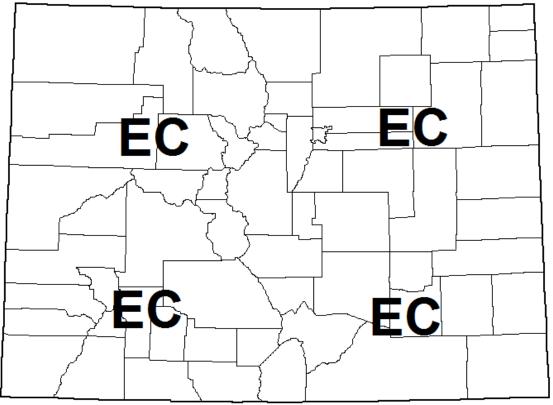
- A Means Above Normal (Average)
- N Means Normal (Average)
- B Means Below Normal (Average)
- EC Means Equal (or Undetermined) Chances for A, N and B

Source: NOAA/Climate Prediction Center

# September 2012 Temperature Outlook for Colorado

NOAA's Climate Prediction Center (CPC) is predicting a 40 to 50 percent chance of above average temperatures for all of Colorado during the month of September.

### September 2012 Precipitation Outlook for Colorado



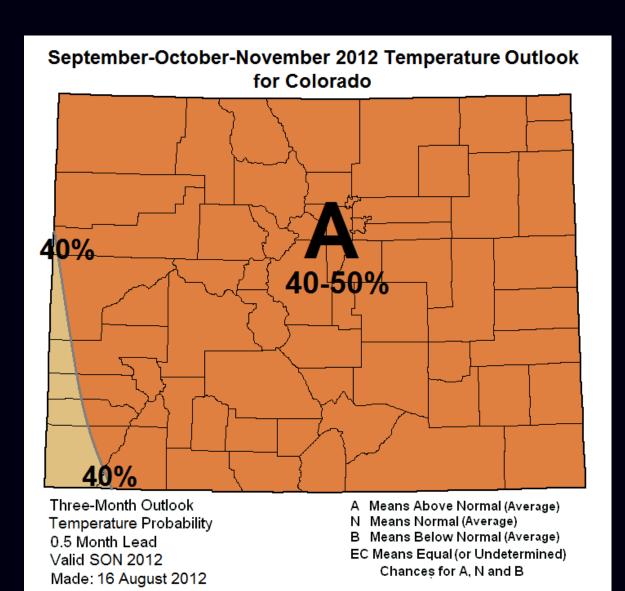
One-Month Outlook Precipitation Probability 0.5 Month Lead Valid September 2012 Made:16 August 2012

- A Means Above Normal (Average)
- N Means Normal (Average)
- B Means Below Normal (Average)
- EC Means Equal (or Undetermined)
  Chances for A. N and B

Source: NOAA/Climate Prediction Center

# September 2012 Precipitation Outlook for Colorado

CPC is calling for an equal or undetermined chance (EC) for above, below and near average precipitation for all of Colorado during the month of September as we approach or even arrive at El Niño conditions in the Pacific Ocean during the month.



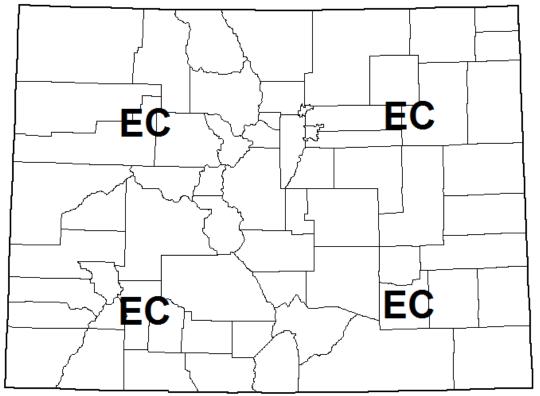
# September-November 2012 Temperature Outlook

for Colorado

The September to November temperature outlook from CPC is calling for a 40 to 50 percent chance of above average temperatures for all except the extreme southwest corner of Colorado, where there is a 33.3 to 40 percent of above average temperatures.

Source: NOAA/Climate Prediction Center

### September-October-November 2012 Precipitation Outlook for Colorado



Three-Month Outlook Precipitation Probability 0.5 Month Lead Valid SON 2012 Made: 16 August 2012

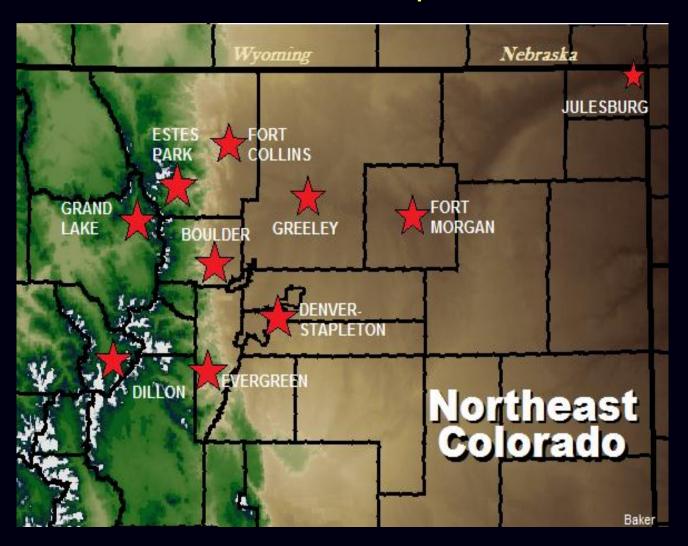
- A Means Above Normal (Average)
- N Means Normal (Average)
- B Means Below Normal (Average)
- EC Means Equal (or Undetermined) Chances for A, N and B

Source: NOAA/Climate Prediction Center

# September-November 2012 Precipitation Outlook for Colorado

Finally, CPC is predicting an equal or undetermined chance (EC) of above, below and near average precipitation for all of Colorado during the September to November climate season.

### Temperature Outlooks from CPC for Ten Specific Locations in North Central and Northeast Colorado for the Three Month Climate Season September-November 2012

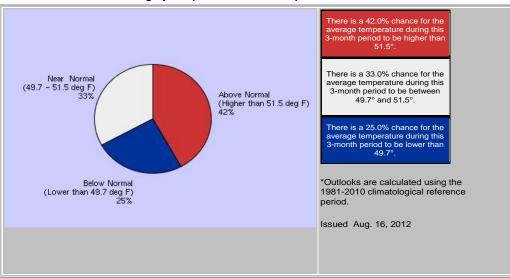


#### BOULDER, CO

BOULDER County, Coop ID: 50848 Elevation: 5484 ft.

Latitude: 39° 59' N Longitude: 105° 15' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



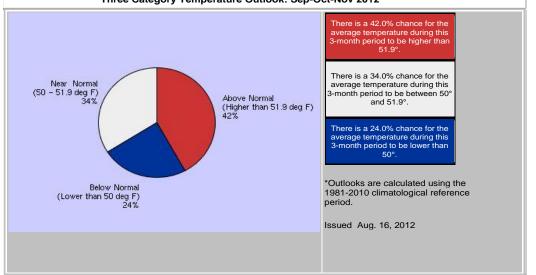
#### DENVER STAPELTON, CO

DENVER County, Coop ID: 52220

Elevation: 5286 ft.

Latitude: 39° 45' N Longitude: 104° 52' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



September-October-November 2012
Three Category Temperature Outlooks
for Boulder and Denver-Stapleton,
Colorado

Issued by the Climate Prediction Center, August 16, 2012

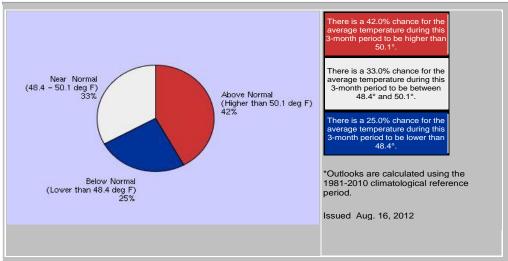
#### FORT COLLINS, CO

LARIMER County, Coop ID: 53005

Elevation: 5004 ft.

Latitude: 40° 36' N Longitude: 105° 7' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



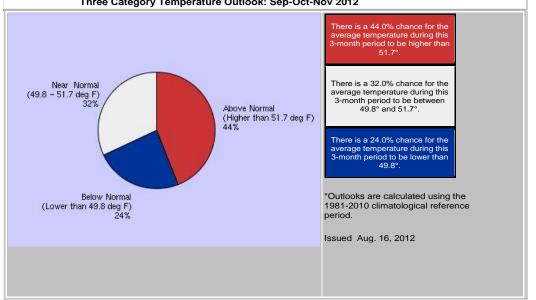
### **GREELEY UNC, CO**

WELD County, Coop ID: 53553

Elevation: 4715 ft.

Latitude: 40° 24' N Longitude: 104° 41' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



September-October-November 2012 Three Category Temperature Outlooks for Fort Collins and Greeley, Colorado

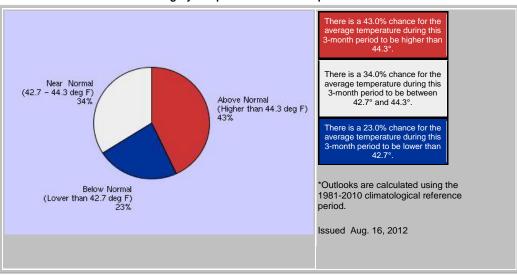
> Issued by the Climate Prediction Center, August 16, 2012

#### **ESTES PARK, CO**

LARIMER County, Coop ID: 52759

Elevation: 7480 ft. Latitude: 40° 22' N Longitude: 105° 29' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012

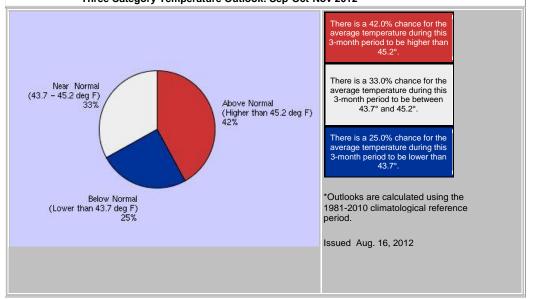


#### EVERGREEN. CO

JEFFERSON County, Coop ID: 52790 Elevation: 6985 ft.

Latitude: 39° 38' N Longitude: 105° 18' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



September-October-November 2012 Three Category Temperature Outlooks for Estes Park and Evergreen, Colorado

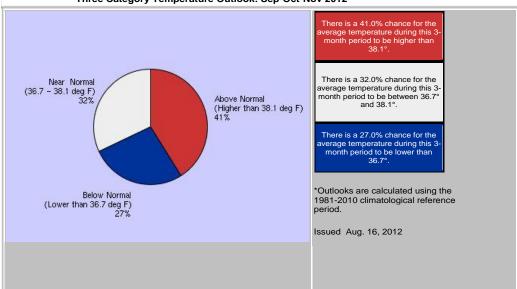
Issued by the Climate Prediction Center, August 16, 2012



SUMMIT County, Coop ID: 52281

Elevation: 9065 ft. Latitude: 39° 37' N Longitude: 106° 2' W

#### Three Category Temperature Outlook: Sep-Oct-Nov 2012

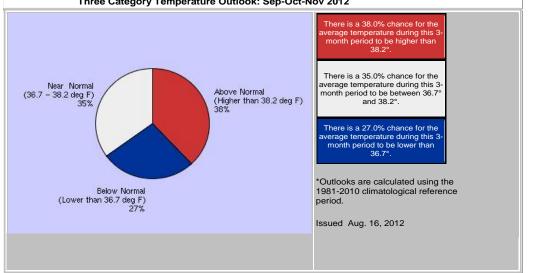


#### GRAND LAKE 1 NW. CO

GRAND County, Coop ID: 53496

Elevation: 8720 ft. Latitude: 40° 16' N Longitude: 105° 49' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



September-October-November 2012 **Three Category Temperature Outlooks** for Dillon and Grand Lake, Colorado

> Issued by the Climate Prediction Center, August 16, 2012

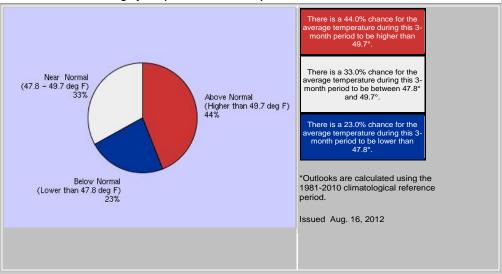
#### FORT MORGAN, CO

MORGAN County, Coop ID: 53038

Elevation: 4332 ft.

Latitude: 40° 15' N Longitude: 103° 48' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012

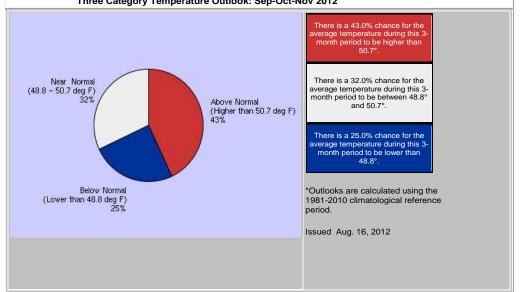


#### JULESBURG, CO

SEDGWICK County, Coop ID: 54413 Elevation: 3469 ft.

Latitude: 40° 59' N Longitude: 102° 16' W

### Three Category Temperature Outlook: Sep-Oct-Nov 2012



September-October-November 2012 **Three Category Temperature Outlooks** for Fort Morgan and Julesburg, Colorado

> Issued by the Climate Prediction Center, August 16, 2012